

HOT TOPICS



Based on the 2006 IRC and the 2006 VAUSBC

How long do I have to comply with the “new” code (2006 IRC)?

The VA-USBC has provisions that allow 1 year for you to use the 2003 code. You must provide us the information that you would like your project reviewed and inspected under the 2003. If there is no notation then we will assume the 2006. Provide this information in the work description when you apply for your permit.

RESIDENTIAL BUILDING



DECKS



**Please refer to the back of
your handout**

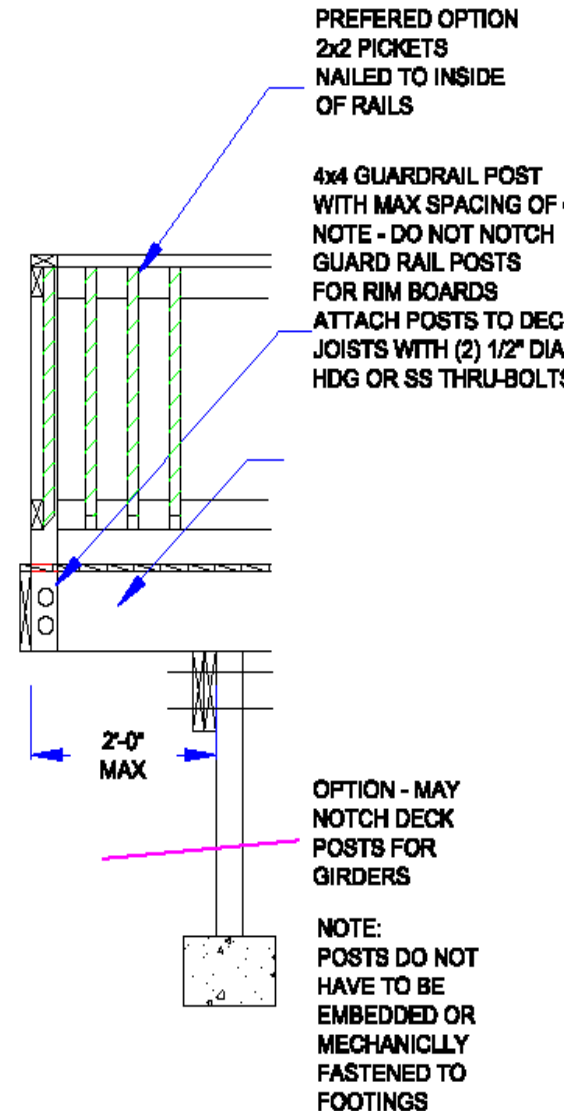


Decks...

Option “B”

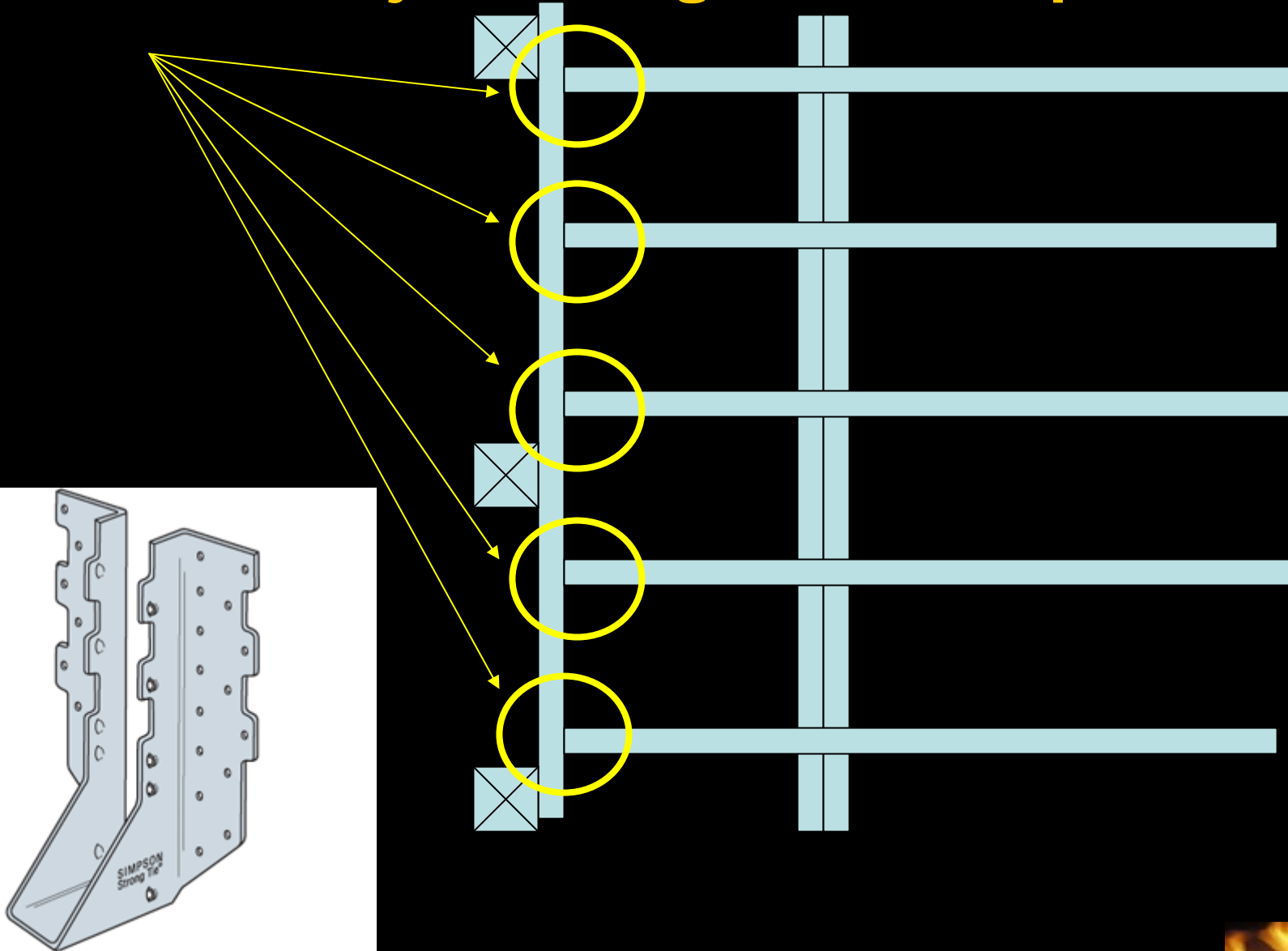
Cantilever Design (page 2)

- Notice the location of the installation of the guardrail post on the side of the joist
- If the post is attached to the outside band then strap type framing hangers must be installed where the joists abut the outside band



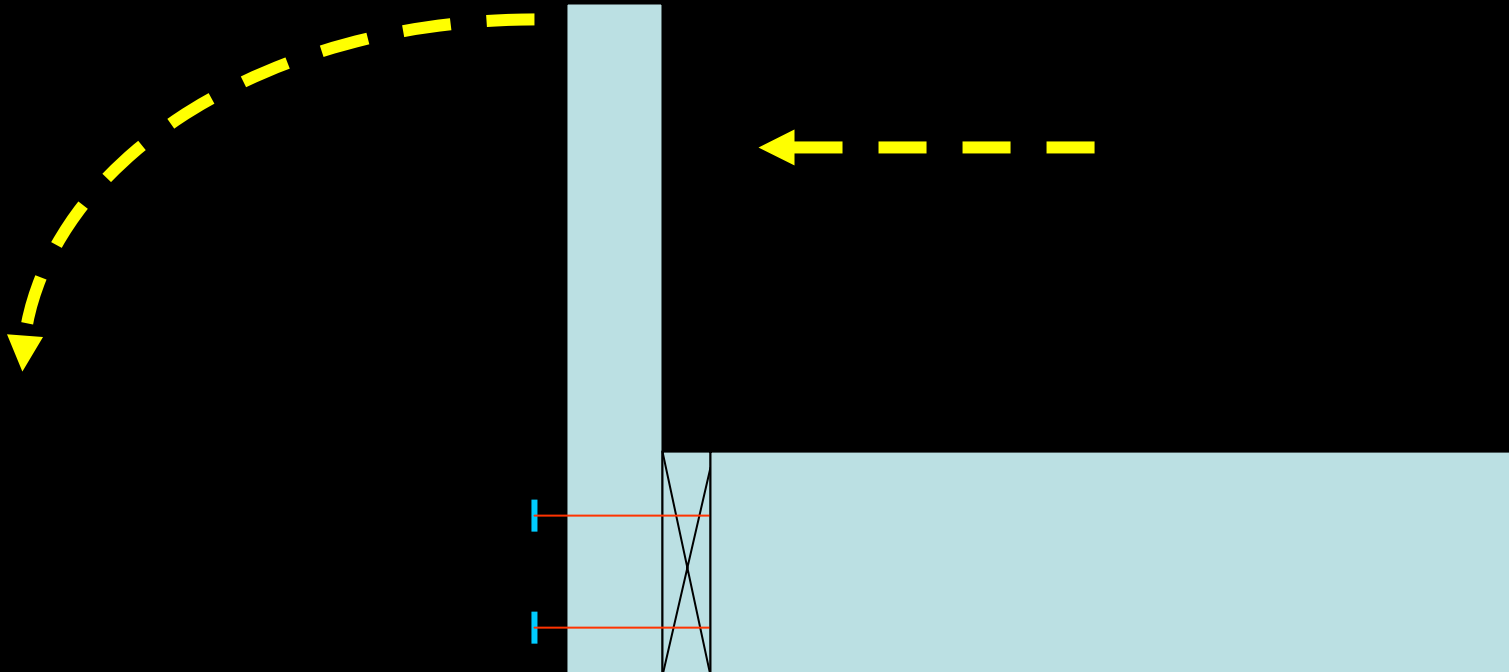
CANTILEVERED DECK TOP VIEW

Double shear joist hangers are required here



Decks...

- This is required to aid in the resistance of the overturning of the post since it is attached to the band which is attached to the end grain of the joists



Decks...

- Notice the location and the number of fasteners installed
- They must be ½" min. diameter lag screws or through bolts with a washer and nut

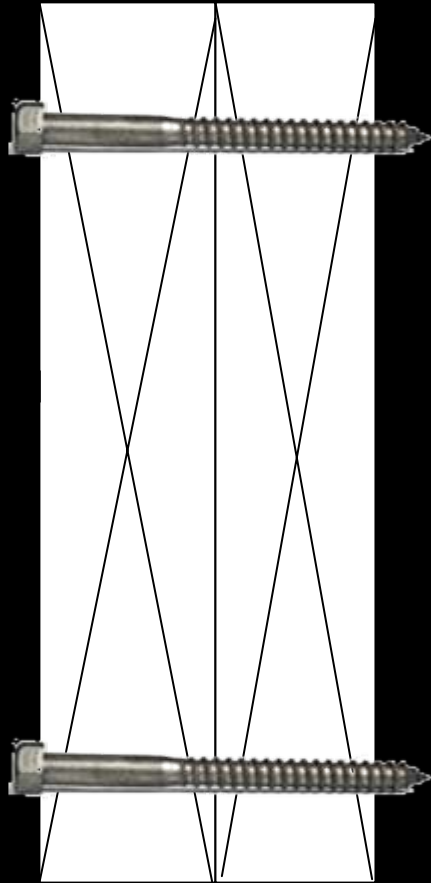


Decks...

- Lag screws must be long enough so the tip fully extends beyond the inside face of the member
- This same requirement applies to the fasteners used to attach the deck ledger to the house band



The tip of the lag screw must fully extend beyond the inside member



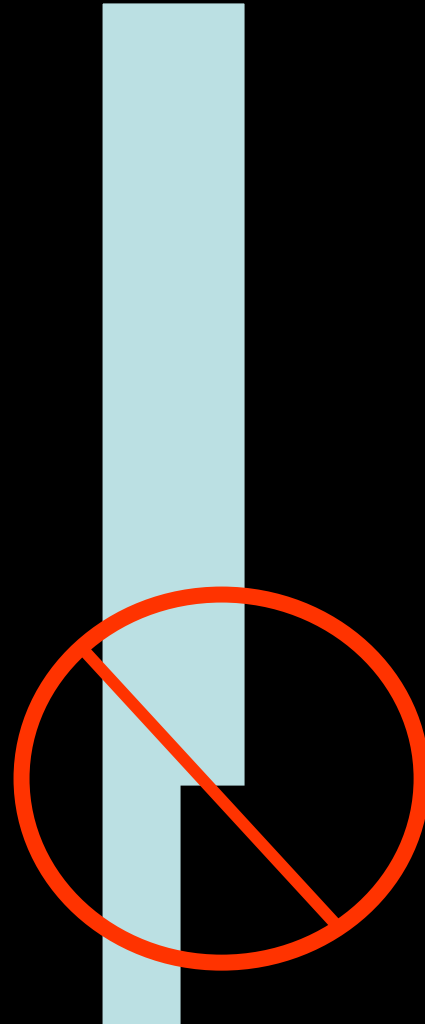
DECK LEDGER

HOUSE BAND



Decks...

- Please remember that handrail and guardrail posts shall not be notched when they are constructed from 4x4 material



Decks...

Also on page 2...

- Advisory about fasteners... be sure you are using fasteners that are compatible with the material being used to construct the deck
- See the chart for the required spacing of fasteners attaching decks to houses...



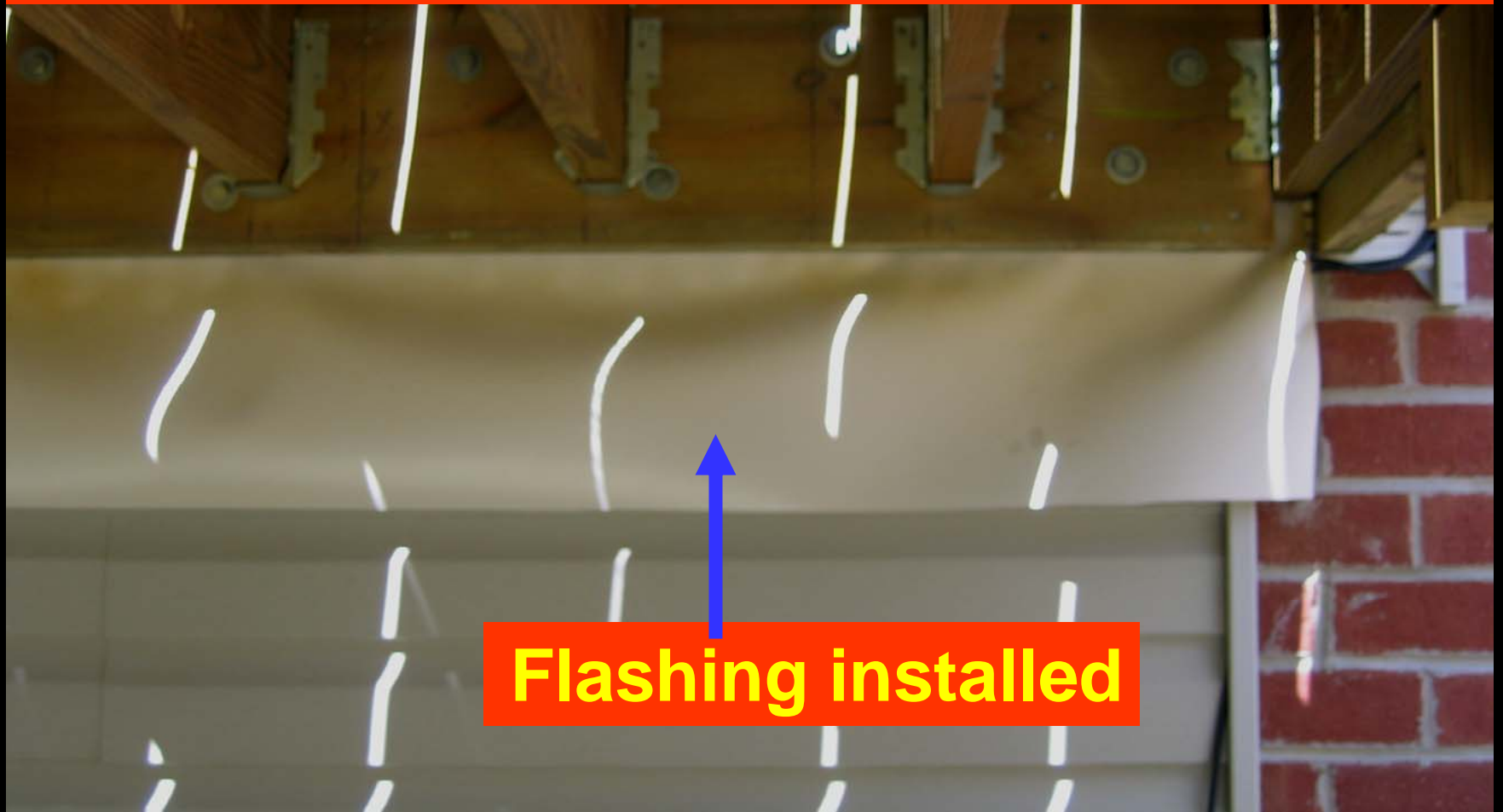
FASTENER SPACING


JOIST SPAN (FT)	6' AND LESS	6'1" TO 8'	8'1" TO 10'	10'1" TO 12'	12'1" TO 14'	14'1" TO 16'	16'1" TO 18'
On-Center Spacing of Fasteners d,e							
½" X 4" LAG SCREWS a,b	30	23	18	15	13	11	10
½" BOLT WITH WASHER	36	36	34	29	24	21	19

- The maximum gap between the face of the ledger board and the face of the house band joist shall be ½"*
- The tip of the lag screw shall fully extend beyond the inside face of the band joist*
- Ledgers shall be flashed to prevent water from contacting the house band joist*
- Lag screws and bolts shall be staggered as set out in Section R502.2.2.1.1*
- Deck ledger shall be 2x8 PPT No. 2 Southern Pine (minimum) or other approved method as established by standard engineering practice*



Lag screws or bolts shall be placed 2" from the ends and then staggered 2" from the bottom and top of the deck ledger based on the span of the joists according to the chart





Ledger strip...this may prevent the proper installation and spacing of the lag screws or bolts along the bottom of the deck ledger. Strap type hangers would then be required on the joists

Decks...

- While a “footing” inspection is not a required inspection for a deck on a new house, the footings must meet the requirements of the code
- They must be round or square poured in place concrete or solid 12x12x8 precast concrete block



**Min. 18” deep to the bottom of the hole
12x12x8 solid block
(or poured in place)**

Decks...

Keep in mind...

- If an inspector discovers a deck without an adequate footing he/she will leave a record on site citing the violation



Decks...



The preferred option for a deck is free standing...
(not attached to the house)





NOTE: This deck is constructed with borate treated lumber. This material is not suitable for exterior use. (Exception: Borate treated wood that is additionally treated according to ICC Evaluation Report ESR-1081 and used only above ground.)



Something New...

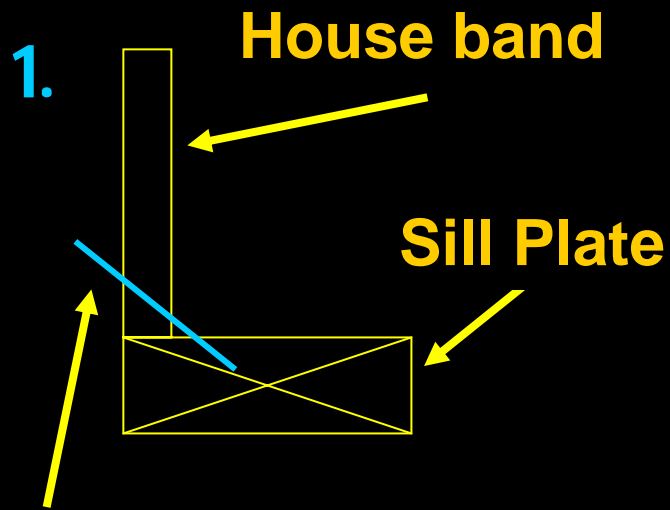
ACQ treated material requires that hot dipped galvanized fasteners be used

This means...

1. The attachment between the outside band and the treated sill plate (in toe)
2. The attachment between the floor joist and the treated sill plate (in toe)
3. And the attachment between a treated deck ledger and the floor joists (in the end grain)

These attachments must be made with hot dipped galvanized nails

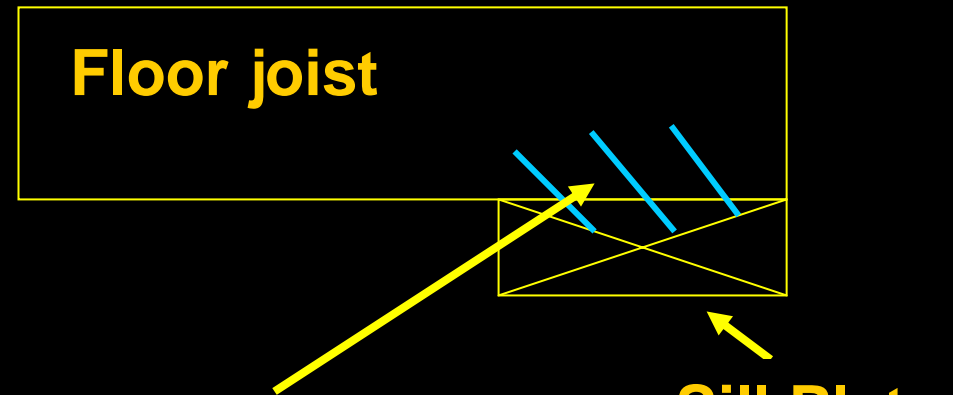




Nails must be hot dipped galvanized

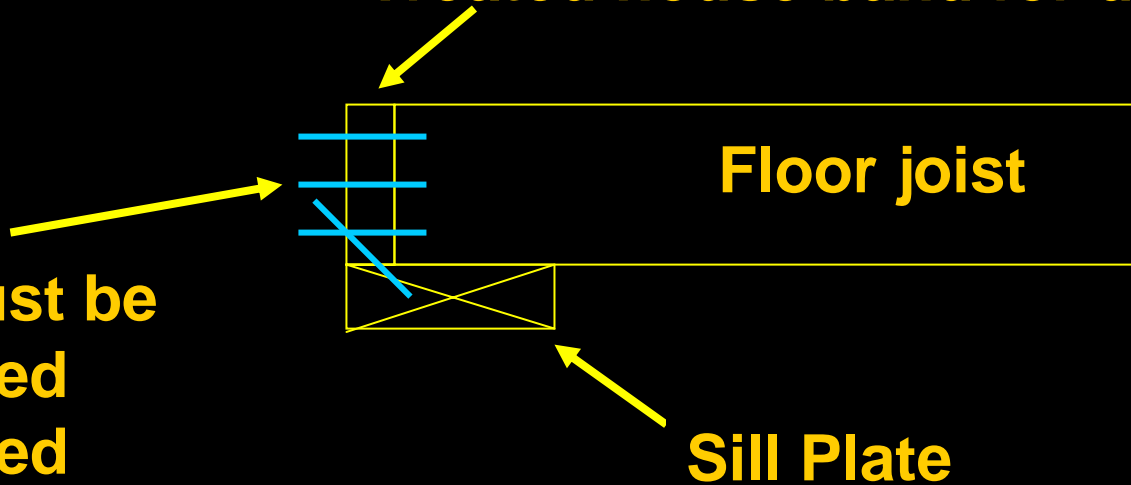
Where treated sills are used...

2.



Nails must be hot dipped galvanized

3. Treated house band for deck attachment



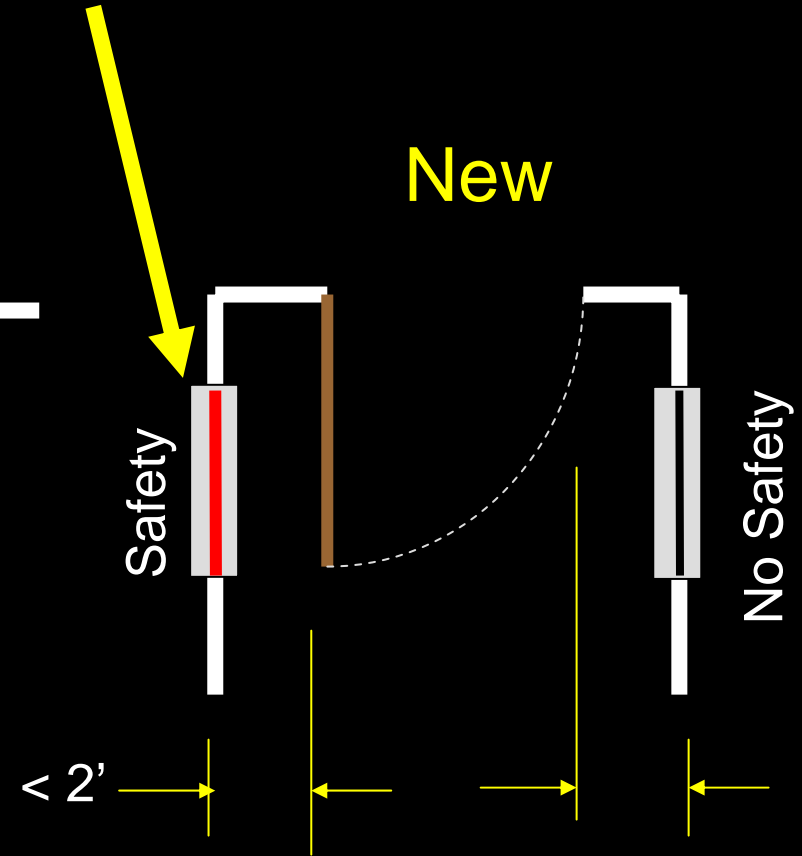
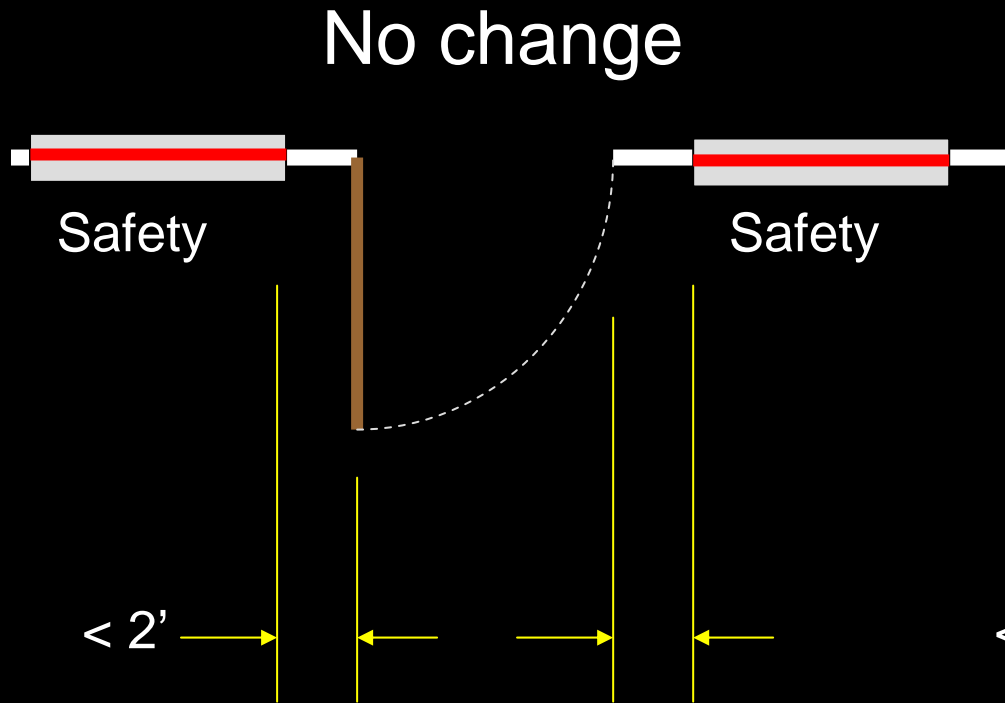
Nails must be hot dipped galvanized



Hazardous Glazing Locations

2006 IRC – R308.4 Exception 4:
A window located on a wall perpendicular to the plane of a door toward which the door swings is required to be safety glazed.

If this window is installed so that it is outside of the arc of the door then it does not need to be safety glazed



Foam Plastic in Crawlspaces

- If your project will involve the installation of this type of product in your crawlspace area be sure it has been tested and approved for use
- For example... a conditioned crawlspace



Foam Plastic in Crawlspaces

- Dow Styrofoam (“Blueboard”) and similar products are not approved as insulation in non-vented crawl spaces on walls unless it is covered with a thermal (ignition) barrier, such as fiberglass insulation.
- Dow Thermax and similar products are approved for installation on walls in a non-vented crawl space without an ignition barrier. We will no longer accept the Blueboard in non-vented crawl spaces. We will accept Thermax and similar products.





Dow Styrofoam (“Blueboard”) is not approved as insulation as installed here



Window Sill Heights

- The VA-USBC amended the 2006 IRC to require that where an operable window is more than 72" above grade, the sill height shall be a minimum of 18" above the floor

NOTE: Approved removable window guards are permitted... except ... they may not be installed on any required emergency escape openings if they require any tools or special knowledge to operate them





Outside: Less than 72" above grade

Note: In a situation similar to this one we will take the measurement from the sill to the deck or patio...not to grade





Inside: The 18" requirement does not apply ²⁸



Outside: More than 72" above grade



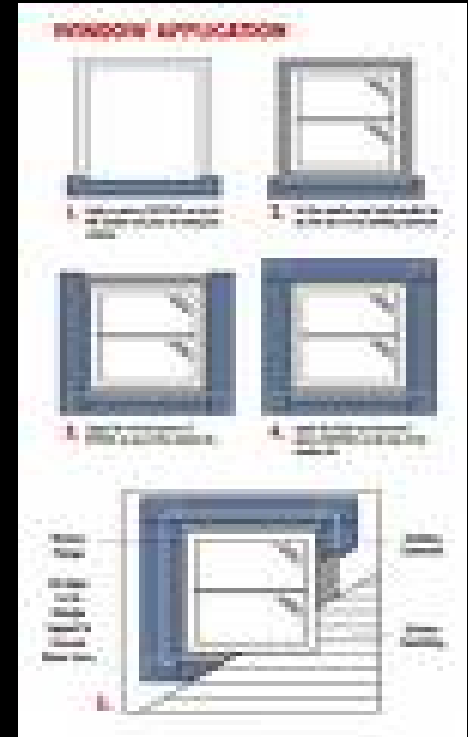


Inside: The 18" requirement applies here

Exterior Windows and Doors

Windows must be installed and flashed in accordance with the manufacturer's written instructions (which must be provided with each window).

(Requirements to flash openings remain unchanged.)



Do I need a “spec sticker” on every window?
As long as all of the windows are the same... NO.



Slab Reinforcement Support

Slabs on grade provided with reinforcement shall have supports for the reinforcement in place prior to placement of concrete.

The reinforcement must be in the center to upper 1/3 of the slab.



This means that if you install welded wire fabric, whether it is required by a design or not, this requirement applies



Landings at Doors

A landing is not required on the exterior side of any door that has a stairway with 1 or 2 risers provided:

- The landing is not at the “required exit door”, and
- The door does not swing over the stairs.

A storm or screen door is exempt and may swing over the stair.

What is the required exit door?

Typically the front to door, or, the 3'0 door. The rest are just egress doors



Foundations With Low Crawlspace Grades

- **Dampproofing** is required for all foundation walls, including crawlspace foundation walls where the interior grade is lower than the exterior finished grade.

• **Waterproofing** is required for all foundation walls including crawlspace walls, in areas with a high water table, where the crawl space grade is lower than the exterior finished grade.

NOTE: This means that the waterproofing application will be the same as the requirements for a basement





- **Dampproof**: If the crawl space grade is lower than the finished exterior grade.
- **Waterproof**: If the lot is located where a high water table is known to exist and the crawl space grade is lower than the finished exterior grade.

Foundations With Low Crawlspace Grades

Solutions:

1. **Get crawl space grade higher than exterior finished grade.**
2. **Increase the foundation height to accommodate more fill in the crawl.**
3. **Dampproof all foundations with low crawl spaces.**
4. **Waterproof all foundations with low crawl spaces when the building is in an area with a high water table.**



So...where is the high water table?

The “high water table” will vary depending on sub-surface groundwater and on site soil conditions. This will become evident to you when you are clearing your lot and excavating your footings. Your soil report may not always provide you with this information. Our advice is that you should be proactive instead of reactive and waterproof if your crawlspace grade will be lower than your exterior finished grade.

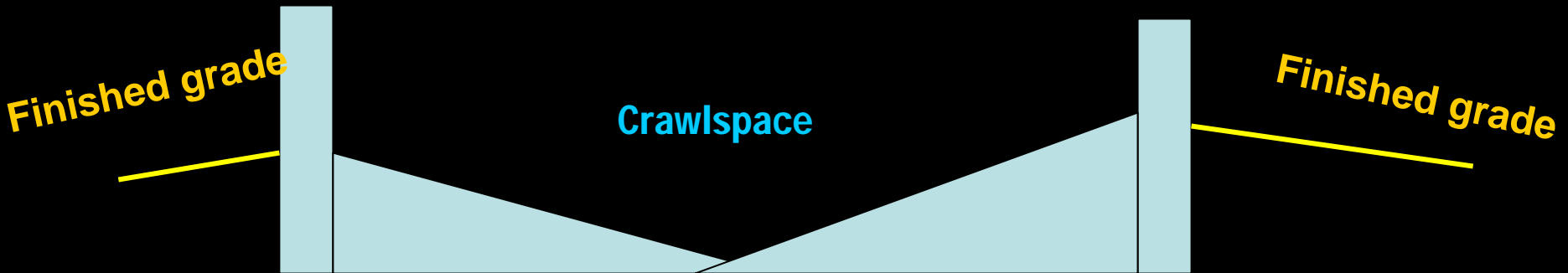


Will an interior or exterior foundation drain satisfy these requirements?

Foundation drainage, while used in conjunction with waterproofing, is a separate requirement to relieve hydrostatic pressure on the walls. There may be some cases where an interior drain would not be acceptable. And... in some cases both an interior and an exterior drain may be required depending on the slope of the lot



Can I grade my crawl and slope the fill up around the edges so the grade is equal to or higher than the outside grade?



No...

The entire crawl space grade must be equal to or higher than the outside finished perimeter grade.



**Is waterproofing or
dampproofing required if I am
using Superior Walls**

NO



What is the difference between waterproofing and dampproofing?

Dampproofing is intended to deter moisture and water vapor

Waterproofing is designed to keep water out

Waterproofing satisfies the requirements for dampproofing



Drainage

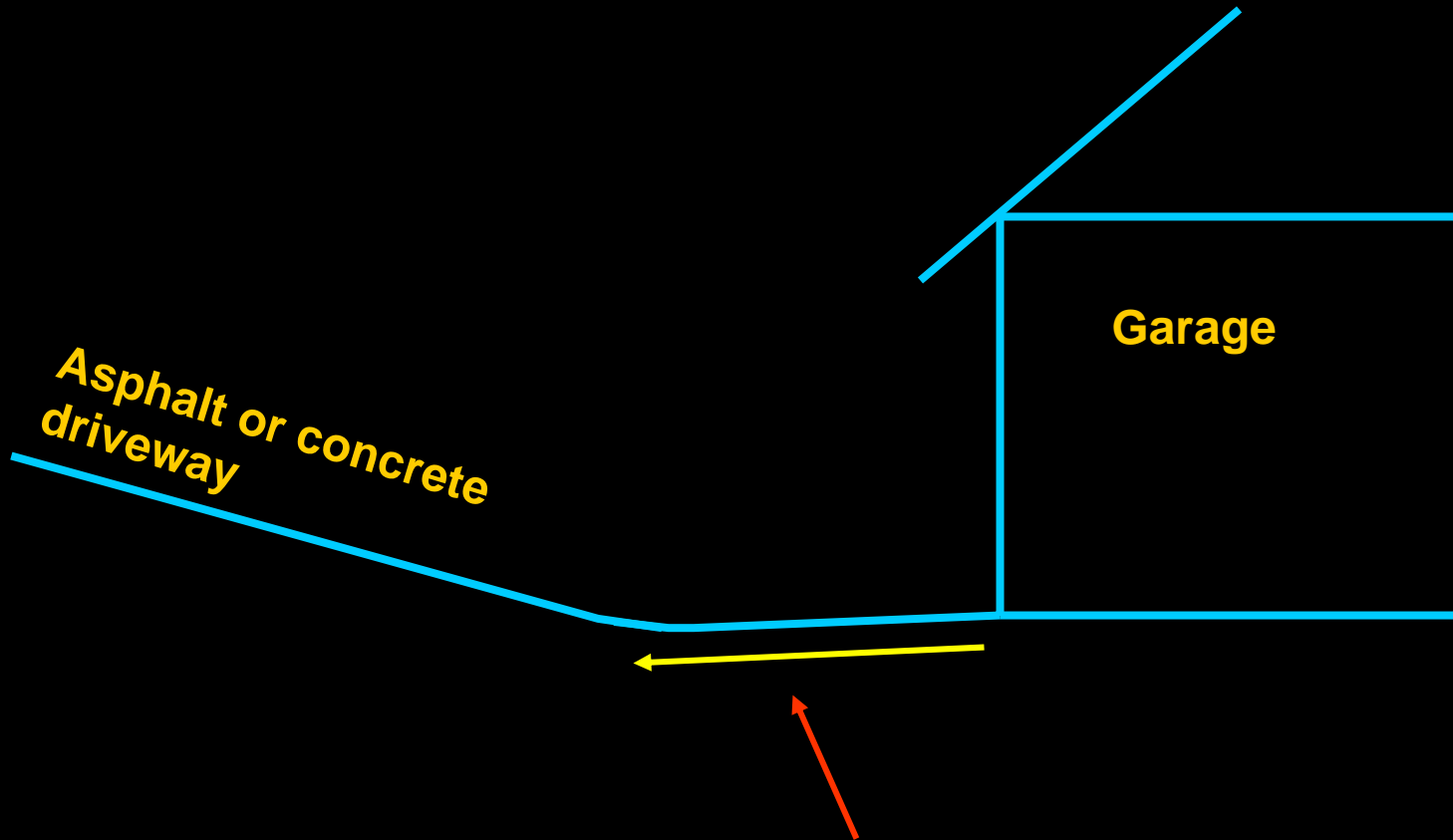
- **Impervious surfaces within 10' of the foundation must have a minimum 2% slope away from the building.**

This also applies to patios that are adjacent to foundation walls

- **This means an asphalt or concrete driveway must slope away from the house for a distance of at least 10'.**



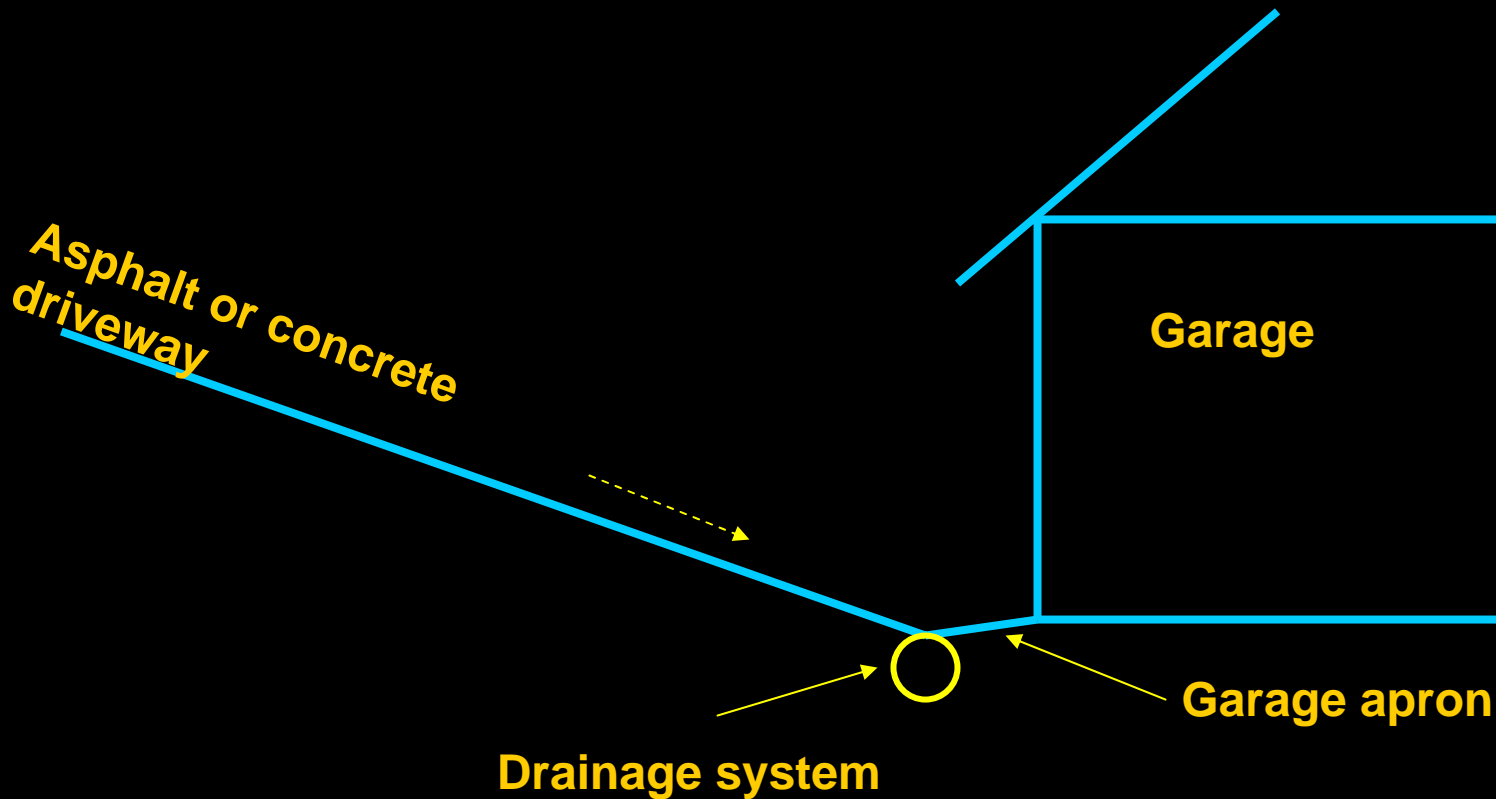
This means that the driveway cannot slope down towards the garage apron.... unless...



Minimum 2% slope for 10 feet away from the house



unless... a drainage system is installed to divert the water away from the foundation



Remember...

One of the requirements for a final building inspection is that there can be no standing water anywhere on the lot

What if I have a “big” lot?

Anywhere that has been disturbed or cleared must drain



Retaining Walls

All retaining walls that are not laterally supported at the top and retain more than 24" of unbalanced fill shall be designed to ensure stability against overturning, lateral sliding and water uplift.



What does this mean?

All retaining walls with over 24" of unbalanced fill will now have to be designed and sealed by a RDP.



Engineers and Inspections

- It has been our policy for quite some time, but, we thought it would be good idea to remind everyone...

We do not accept letters from design professionals (i.e. 3rd party inspections) in lieu of inspections we perform

There are 2 exceptions...

1. Footing reports...or...
2. We have requested such a report based on an inspection we have performed



RESIDENTIAL and COMMERCIAL ELECTRICAL



Concrete Encased Electrodes

- This is a new requirement found in the National Electrical Code
- It states that..."where present at each building or structure all grounding electrodes shall be bonded together to form the grounding electrode system"



Concrete Encased Electrodes

- The effect of this change means that where a concrete footing is placed for a building, and it is reinforced with rebar, there shall be an electrode encased in at least 2 inches of concrete located within and near the bottom of the footing that is in direct contact with the earth.

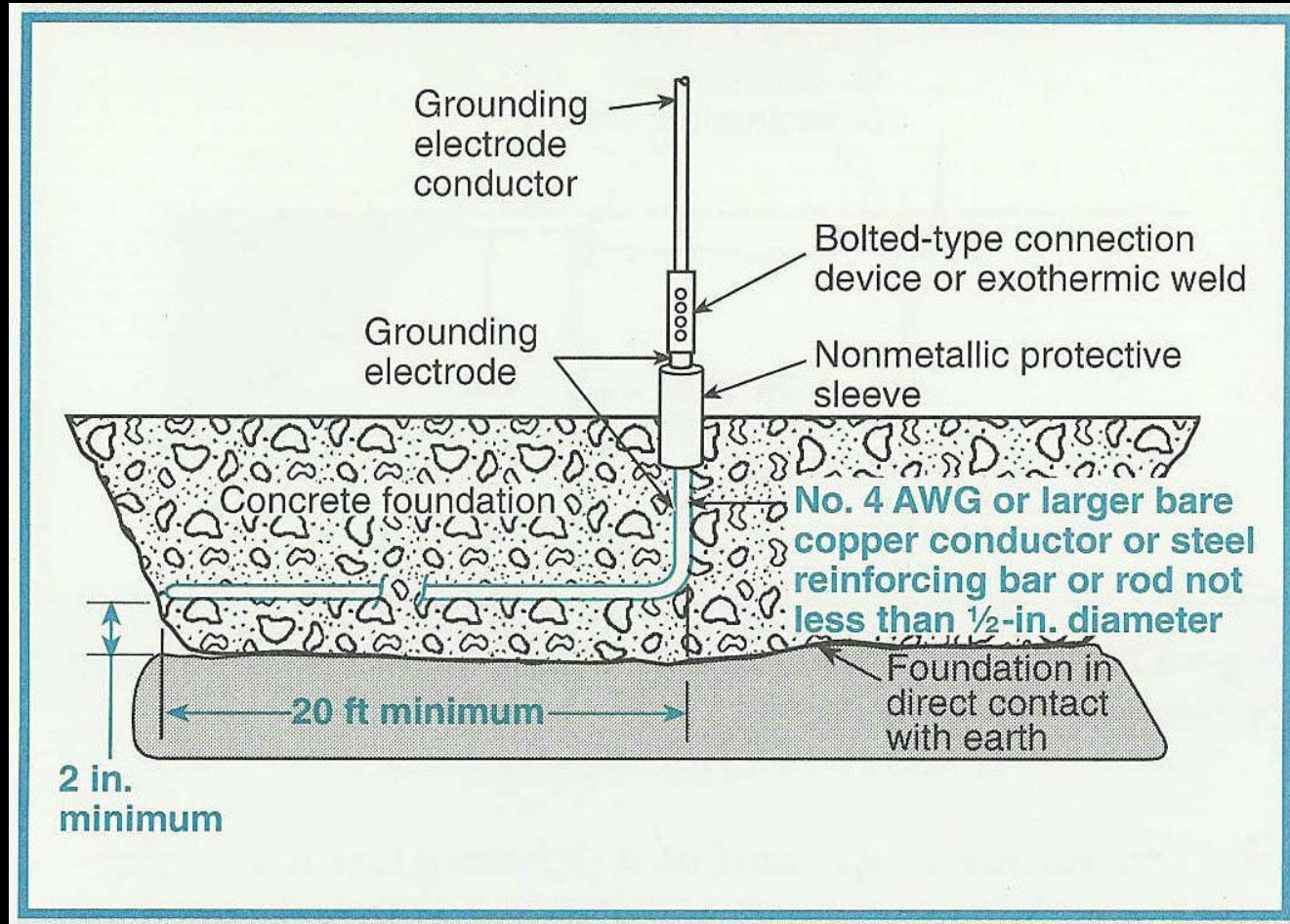


Concrete Encased Electrodes

- The “Ufer” ground must be inspected prior to the placement of concrete.
- If a third party inspector inspects the footing then he/she is permitted to perform the “ufer” ground inspection as well.
- The Chesterfield County footing inspection and concrete placement form has been modified to designate if the electrode was present and inspected



Concrete Encased Electrodes



“Ufer ground”

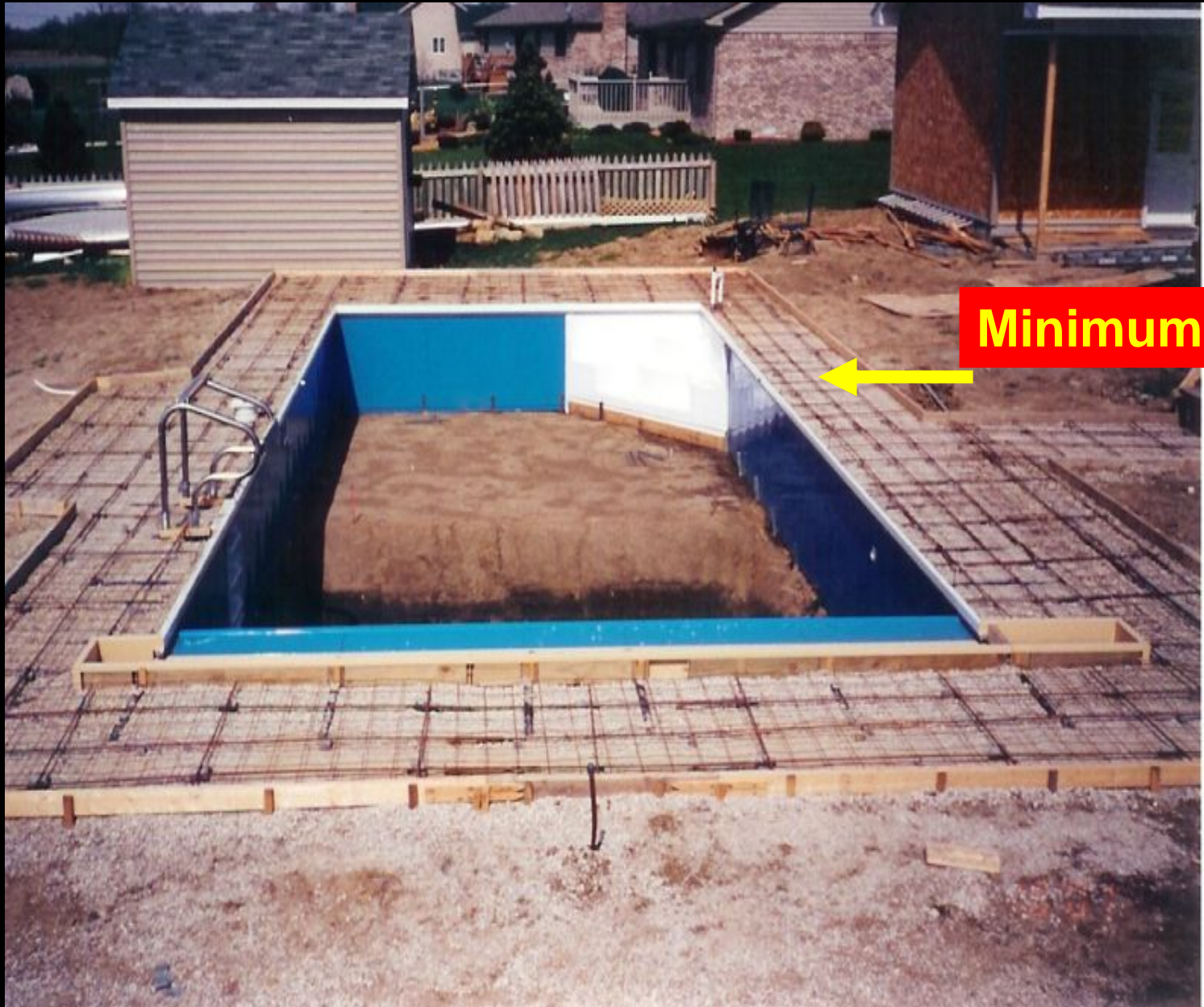
Concrete Encased Electrodes



Equipotential Bonding Grid (Pools and Paved Decks)

- **CONDUCTIVE MATERIAL POOLS:**
Poured concrete, Sprayed concrete, concrete block with painted or plastic coatings.
- **NONCONDUCTIVE MATERIAL POOLS:**
Vinyl lined polymer wall, fiberglass composite, or other nonconductive material.





Note:

Welded steel mesh may be used as bonding grid in a poured concrete deck....

But.... Please remember the building code requirements

Slabs on grade provided with reinforcement shall have supports for the reinforcement in place prior to placement of concrete. The reinforcement must be in the center to upper 1/3 of the slab.



Alternate Means

- If equipotential bonding grid is to be placed under the paved walking surface then you must use the Alternate Means of grid construction described in 680.26(C)(3).
- The Grid shall be constructed of minimum #8 bare solid copper conductors and shall be bonded to each other at all points of crossing. Connections shall be made as required by 680.26(D).
- The grid shall cover the contour of the pool and the pool deck extending 3' horizontally from the inside walls of the pool. The grid conductors shall be arranged in a uniformly spaced 12"x 12" pattern.



3' X 100' Roll

\$680.00



Hot Tubs



Is UF cable a permitted outdoor branch circuit wiring method for hot tubs?

No. UF can be used only in the interior of the building.



Clearances

- Maintain proper clearances around disconnects for outside HVAC units.

36" in front of and 30" wide

NOTE: Same requirement for pool equipment disconnects



Nonmetallic-Sheathed Cable

Reminder:

Cannot be used where subject to excessive moisture or dampness



...for example
Installed in flex from
the disconnect to the
outside HVAC unit



Can NM cable outer sheathing be
removed and then used in flex to
outside HVAC units?

No... all conductors must be
marked for their use

Outdoor Receptacles



**Multi-Family
Dwellings:**

**One G.F.C.I.
receptacle is
required for
each unit with
grade level
access.**

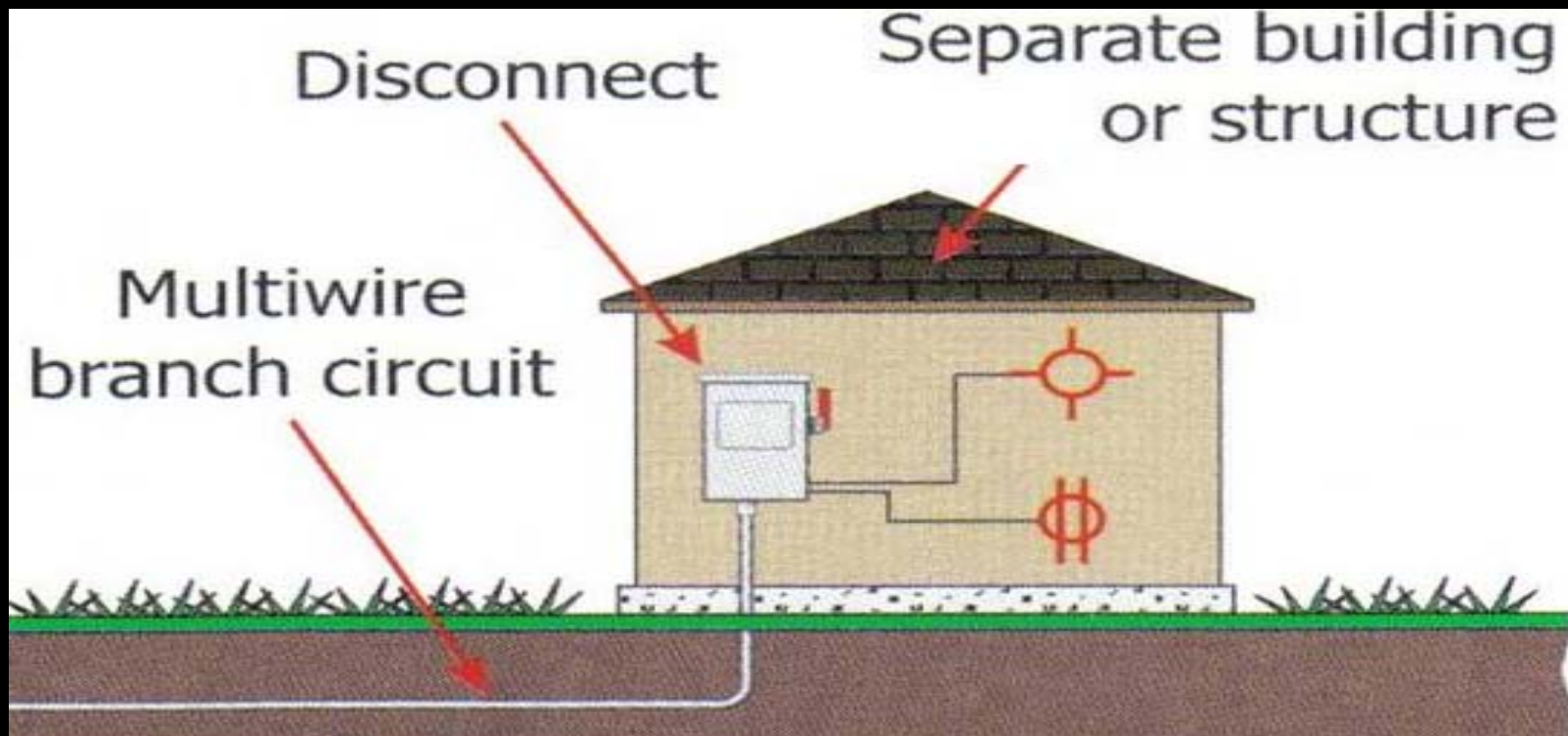
Is a receptacle required front and back?

No...only one receptacle is required ...either front or back

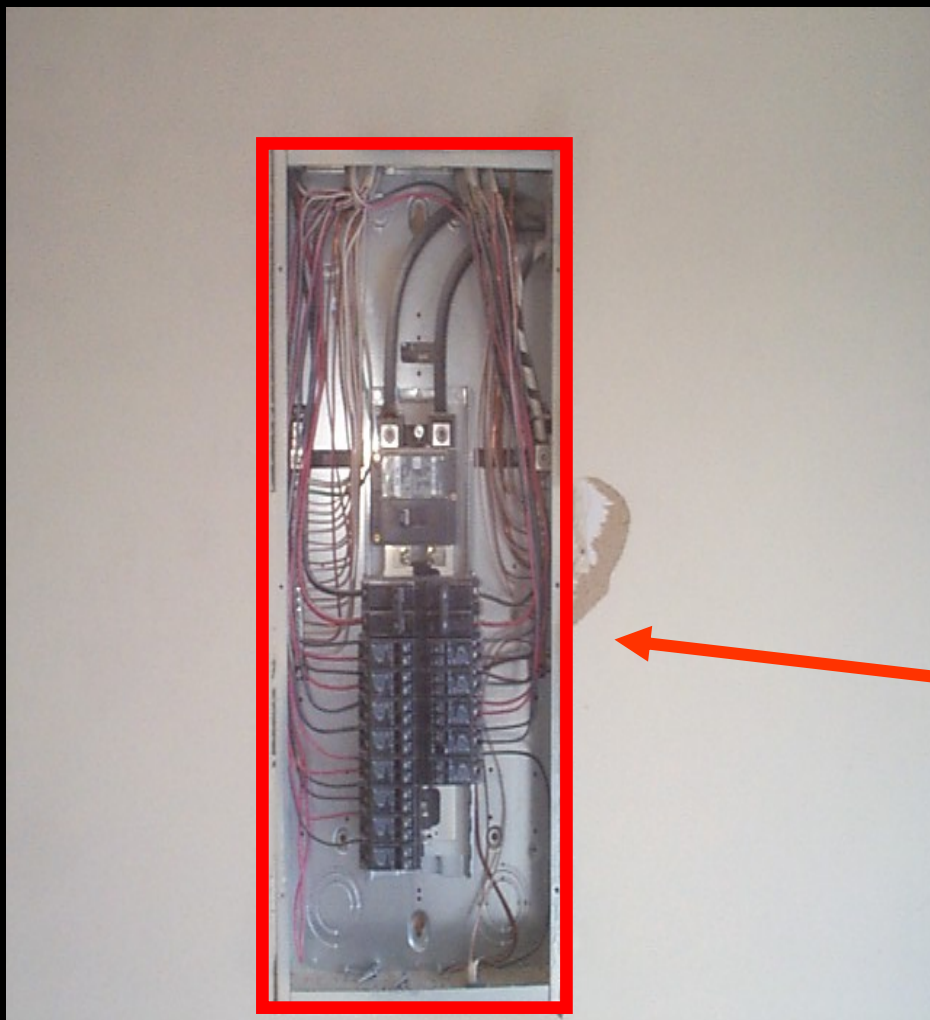
Buildings or Structures

Branch Circuits

Exception: Multi-wire Branch Circuit shall be considered a single branch circuit and grounding electrodes are not required.



















Repairing Plaster and Drywall or Plasterboard



- This new section was added to include cabinets.
- Not more than an 1/8" gap is permitted



Circuit Directory and Identification:
Every circuit shall be legibly labeled for its clear use and specific purpose.

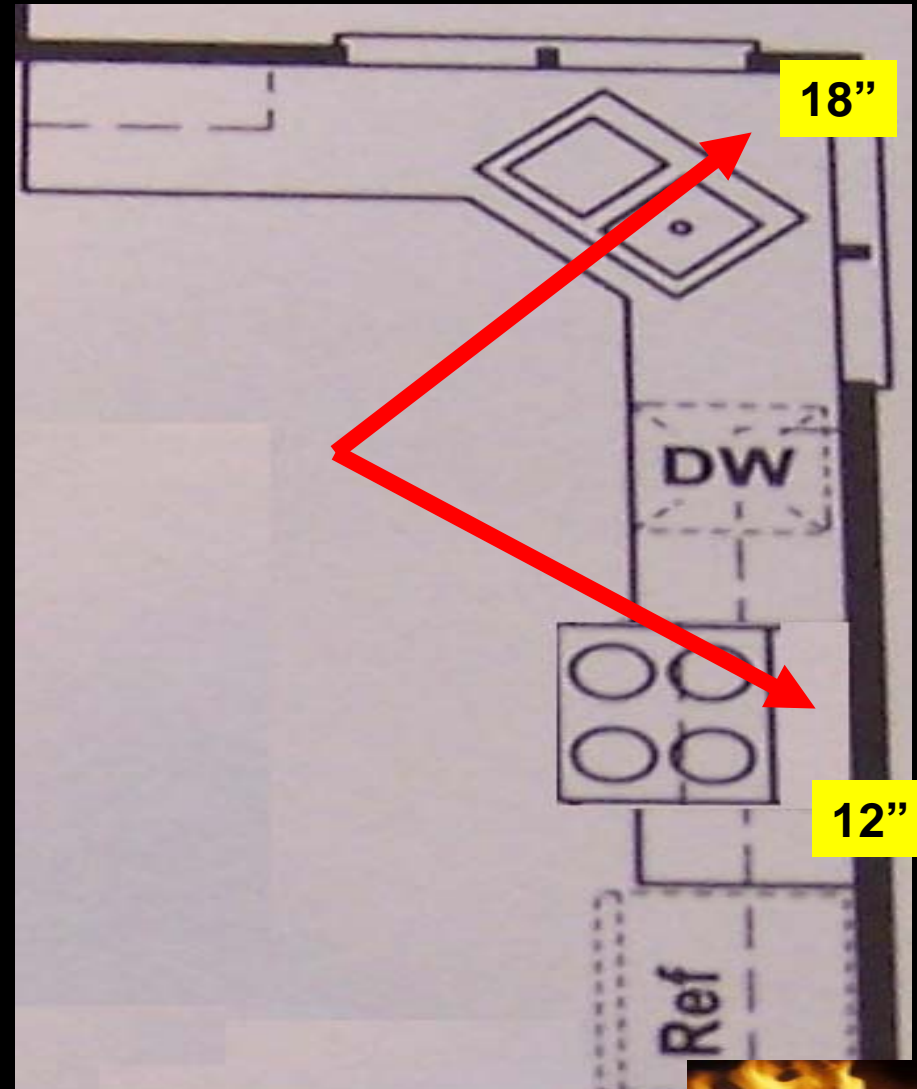
1	GAS FURNACE			FAMILY	2
3	GARAGE			FOYER/DINE LTS DOWN BATH LTS	4
5	2ND FLOOR SITTING ROOM			COOK TOP	6
7	UP HALL LTS UP BATH LTS			DOWN MASTER BATH LTS	8
9	REF/DINING			UP MASTER BATH LTS	10
11	BATH RECEPT			KIT LTS	12
13	1/2 KIT			DOWN LTS	14
15	MICRO			SPARE	16



Counter Top Receptacles

Spaces Behind Sinks & Ranges:

Receptacles are required and count as the required receptacles to serve other countertop spaces.





**If equal to or
greater than 18"
a receptacle
must be added.**



Laundry, Utility and Wet-Bar Sinks

G.F.C.I. Protection: All Receptacles within 6 ft. of sinks require GFCI protection

- **Washing machine receptacles located six feet or closer to a sink will require GFCI protection...and**



...and

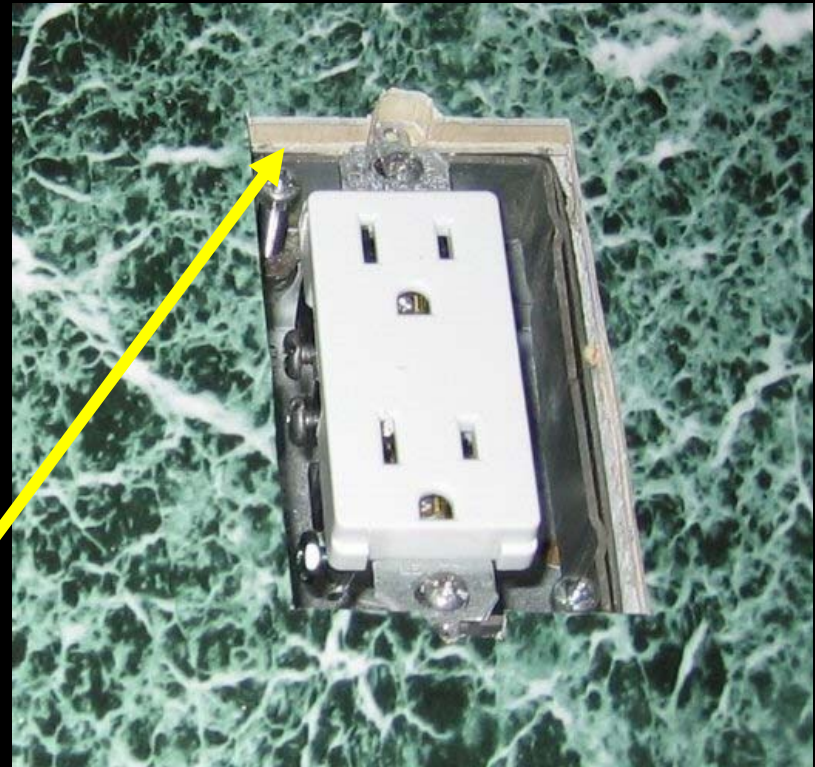
**Single receptacles installed in
garages for appliances will
require GFCI protection if they
are located within 6 feet of a
laundry tub**



Device Boxes

Position in wall...

Device boxes located in walls of non-combustible material cannot be set back from the finished wall surface more than $\frac{1}{4}$ of an inch



Service Entrance Cable

Can SE cable be used in an underground conduit?

No...

The manufacturer's listing and labeling does not permit this type of installation



Automatic Transfer Switches

Factory Whip

Reminder: Install a bushing if ungrounded conductors larger than 4AWG are contained in the factory whip



Furnace Heat Strips

Reminder:

**It is a code requirement that the heater
model be marked on all electrical
furnace labels**



**RESIDENTIAL and
COMMERCIAL
PLUMBING,
MECHANICAL, and FUEL
GAS**



VA-USBC Requires a Tracer Wire to be installed for non-metallic sewers.

Is the use of tracer tape in lieu of wire acceptable?

Yes.



Lawn Irrigation Systems

Can we install unions to remove the backflow preventer for winterization?

Yes...provided the backflow preventer is re-installed after the water has been removed

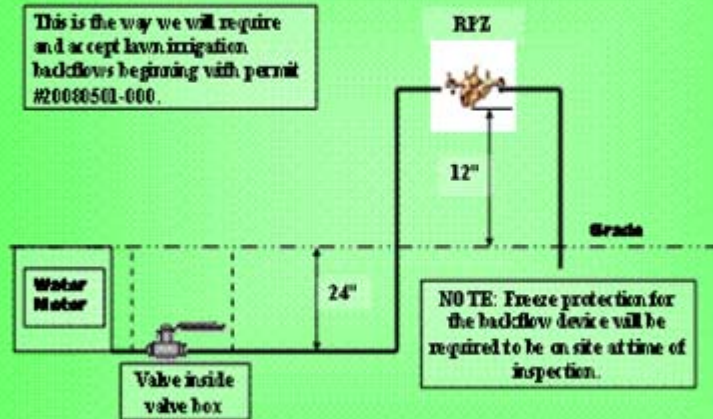
Where do the blowdowns go?

Not in front of the device

Can we use insulated bags for winterization protection?

Yes...must have product specs on site

Reduced Pressure Zone Backflow Preventer



Dryer Exhaust Termination

- Per manufacturers instructions dryer exhaust cannot terminate within 3' of an outdoor unit nor shall it be installed above the unit.



Foundation and supports for outdoor units are to be raised 3” above finished grade

Do both the pad and the support need to be raised 3 inches?

NO...either the pad or the supports must be 3 inches above finished grade



Float Switches on crawl units

Can we install float switches on
secondary drains for crawl space
installations

Yes



Secondary Drains

- All secondary drains must terminate in a conspicuous location
- **For example:** In an attached garage or over a window or a door



CSST Gas Pipe Bonding

VA-USBC requires that CSST piping be bonded to the electrical grounding system at the point where the gas pipe enters the building.

So...can we bond gas pipes inside or outside of the foundation wall

Yes...

What if the gas pipe does not enter the building?

...then it is not required to be bonded



CSST as Fuel Gas Appliance Connectors

Does CSST have to be bonded if used as an appliance connector?

No



Gas Testing (gauges)

- A maximum 30 psi gauge is required for testing of gas lines
- Minimum test pressure is 10 psi
- Maximum test pressure is 20 psi



WEBSITES

- www.vbcoa.org
- www.vpmia.org
- www.iaevirginiachapter.org
- www.chesterfield.gov
- www.iccsafe.org

